

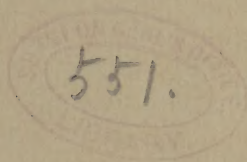
KNIGHT (C. H.)

CYST OF THE MAXILLARY SINUS.

BY

CHARLES H. KNIGHT, M. D.

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CYST OF THE MAXILLARY SINUS.*

By CHARLES H. KNIGHT, M.D.

IN a discussion on the accessory sinuses before the Congress of Physicians and Surgeons in 1894, Bryan, following the usual custom, divided cysts of the antrum into three varieties: (1) Those due to dilatation of a follicle in the mucous lining of the antrum; (2) those resulting from cystic degeneration of a polyp; and (3) dentigerous cysts, internal and external. The last-mentioned, external dentary cysts, are, properly speaking, not antral cysts, since they are primarily developed outside of the maxillary sinus and reach its interior only by eroding and breaking down its bony wall.

Dropsy of the antrum (*hydrops antri*), or an accumulation of non-purulent secretion within the cavity, due to obstruction of the ostium maxillare, is discarded by the majority of modern observers as a separate pathological condition. In the *Revue de laryngologie*, etc., September 1, 1894, p. 786, a case is reported by Délie under the title Dropsy of the Antrum: Nasal Hydrorrhœa. The title would imply that here the ostium maxillare was not closed,

* Read before the American Laryngological Association at its seven
teenth annual congress.

whence the inference that serous effusion may take place into the antral cavity while its nasal orifice remains patulous. In his well-known work on *Surgery* (page 596), Ferguson remarks that in some cases the ostium maxillare becomes closed, and the accumulating *mucus* produces enormous distention of the antrum with great disfigurement. He gives a drawing (Fig. 390) which is supposed to illustrate the foregoing condition in which the tumor ruptured during life.

A very animated discussion of this subject was provoked at a meeting of the Paris Surgical Society by a case of antral fistula consecutive to a *dropsy* of the sinus reported by Quenu. He succeeded in closing the fistula by a rather elaborate plastic operation, which was pronounced by Berger to be entirely useless, the difficulty in these cases being not to close but to keep open the artificial passage from the antrum. Berger affirmed that this and similar cases called dropsy were really examples of dentary cyst described by Magitot, and that dropsy of the sinus without suppuration was so rare as to be almost unknown (*Journal of Laryngology*, vol. ii, 1888, p. 278). Watson also, in his work on *Diseases of the Nose* (second edition, 1890, p. 173), condemns the designation "dropsy" as being altogether inappropriate, since it implies a false idea of pathology and ætiology.

Many of the cases reported as hydrops of the antrum are believed to be really cystic formations originating in the mucous membrane. On the other hand, a belief in the existence of a genuine dropsy of the antrum has not been abandoned by all, as appears from a paper in the last volume of the *St. Bartholomew's Hospital Reports* (vol. xxx, 1894, p. 237) by W. J. Walsham. In reviewing the points in differential diagnosis he mentions bulging of the walls of the antrum, prominence of the cheek, protrusion of the

eyeball, nasal obstruction, and yielding of the anterior wall of the antrum under pressure in the canine fossa as being "well-known symptoms of *dropsy of the antrum*."

The term is still retained by many others, and probably will remain in our nomenclature to distinguish a watery accumulation in the antrum, of whatever origin, from empyema. Heath, who gives a most satisfactory description of affections of the antrum in his work on *Injuries and Diseases of the Jaws* (p. 168), believes that the name should be discarded, and evidently thinks that all cases reported as hydrops antri were primarily cystic. It would certainly relieve us of much confusion if Heath's suggestion should be adopted.

The frequency of cysts of the antrum is not very great. Luschka, quoted by Heath, found cystic growths in the antrum five times in sixty post-mortem examinations. Heath himself states that no instance of the kind was discovered by Beck in an examination of the antra of thirty subjects. Weber, quoted by Lefferts, in Ashhurst's *International System of Surgery* (vol. v, p. 451), has reported three hundred and seven cases of tumor of the antrum, twenty of which were cystoma. Undoubtedly a cyst may exist for some time without exciting any disturbance. When pressure effects are produced, or the tumor ruptures and its contents escape into the cavity of the antrum and thence reach the nasal fossa, the patient is apt to seek advice.

A study of some of the reported cases is of interest as bearing especially upon the questions of diagnosis and treatment. In the *Medical Chronicle*, July, 1894, two cases are recorded by G. A. Wright which in some features resemble my own. In each of these cases the bony wall of the antrum had been displaced and more or less absorbed, and in each some of the teeth were carious. In one there

was a history of traumatism, two incisor teeth having been broken by a fall down stairs six years before. The treatment in each was by incision above the alveolus, where the tumor protruded, a clear watery fluid being drained off. The reporter does not venture to choose between a diagnosis of dropsy of the antrum and mucous retention cyst, but suggests that either explanation may be possible. In a case reported by Morales (abstract in *Journal of Laryngology*, etc., vol. i, 1887, p. 186) of tumor of the left cheek, the diagnosis of cyst of the maxillary sinus was based upon the escape of seropurulent fluid from a spontaneous opening in the neighborhood of the second molar tooth. The sinus was opened under cocaine along the alveolus and a great quantity of fluid escaped. The cavity was drained and dressed antiseptically, and the patient is said to have been discharged cured in about three weeks.

The diagnosis of these cysts is not always a simple matter. Heath cites Fergusson's case, in which preparations had been made to remove the upper jaw for a supposed solid tumor, which was shown to be fluid by a preliminary explorative puncture (*Lancet*, London, June 29, 1850). The same author refers to a case within his own knowledge, "in which a very able surgeon removed the upper jaw before discovering the error of his diagnosis." A parallel case is reported by Marchant (abstract in *Journal of Laryngology*, etc., vol. iv, 1890, p. 164), in which a dentary cyst simulated a sarcoma and was treated by resection of the superior maxilla. A similar error might readily have occurred in my own case, but for exploration with the needle and translumination, the wall of the tumor being so tense and the mass itself so resistant that many who examined it pronounced it a solid tumor.

Cysts of the antrum may be single, as in several interesting cases described by Adams, who was the first to

investigate this subject, or multiple, as in specimens portrayed by Giraldès in his prize thesis (1853). The latter observer found cases in which the tumors were very numerous, the entire mucous lining of the sinus apparently having undergone cystic degeneration.

The history of my own case is as follows :

W. H. C., aged twenty-nine years, clerk, has always had excellent health. Eighteen months ago he first noticed a painless swelling of the gum at the root of the canine tooth of the left upper jaw. It grew steadily without pain or sensitiveness, and the left side of the face became noticeably prominent. The teeth have always been soft and inclined to decay, but never painful or ulcerated. There has never been any nasal stenosis or indication of catarrhal trouble. There is no distinct history of traumatism. The only point recalled by the patient is that in bowling, which he has practised for many years, he has been in the habit of resting the heavy ball against his left cheek. Was the concussion, or possible contusion, thus produced an ætiological factor in the case?

At the time of his first examination the patient complained of nothing whatever, except the obvious deformity caused by the tumor in the left malar region. The mass pushed the upper lip forward, and seemed to reach nearly to the lower margin of the orbit. It extended from the ala nasi across the left side of the face. The skin was unchanged and not adherent. There was no feeling of crepitation or crackling, mentioned by many writers in describing these cases. The sense of fluctuation was so obscure that several who examined it believed it to be a solid tumor. The diagnosis of serous effusion was, however, very beautifully confirmed by the transillumination test, and still further by the exploring needle. On raising the upper lip the tumor could be plainly seen protruding in the gingivo-labial fold. The first bicuspid tooth was missing and the second was carious. There was no sensitiveness on percussion or palpation of the alveolus or of the tumor at any point. There was no malformation of the roof of the mouth, and the left nasal fossa was quite normal.

With the expectation of finding a cyst of the antrum, an incision an inch and a half in length was carefully made along the gingivo-labial furrow. What appeared to be a cyst wall was thus exposed. On attempting to dissect out the tumor it was found to be firmly adherent to the bone, and it was finally ruptured. The lining membrane of the antrum seemed to constitute the cyst wall. A section of the membrane as large as a ten-cent piece was cut away for microscopic examination. It was then discovered that the anterior bony wall of the antrum had been almost entirely absorbed, only a thin shell of bone being left near the nose. Upward of two ounces of thin, slightly turbid fluid were evacuated. Digital examination of the interior of the antrum discovered nothing abnormal. There was no exposed, necrosed, or carious bone, and no polypoid degeneration of the mucous membrane could be detected. On the contrary, the membrane seemed thin and closely attached to the bony walls of the cavity. The root of the second bicuspid tooth projected into the floor of the antrum, but was covered by intact mucous membrane. As its crown was badly decayed it was extracted. A director was passed with some difficulty from the antral cavity into the nasal fossa through the ostium. The cavity, having been washed out, was packed with iodoform gauze, and the lip was replaced, no other dressing being applied. No reaction or disturbance of any kind followed the operation. The gauze plug was removed on the second day and was not renewed. No sign of suppuration occurred. The opening through the alveolus gradually contracted until, at the time of the present report, four months since the operation, it has nearly closed. No indications of recurrence have as yet appeared, and the patient has no inconvenience from his small antral fistula.

In the light of modern pathology this case is reported as one of cyst of the antrum, although it presents many of the clinical features which we might expect in true *hydrops antri*. It was impossible to distinguish a separate cyst wall, and it is difficult to believe that a cyst could have become so agglutinated to the walls of the antrum as to

obliterate at all points a line of demarcation between its wall and the lining membrane of the antrum. Its disappearance is explained by absorption, the cyst rupturing into the antral cavity and every trace of the sac ultimately becoming effaced. The character of the fluid found in the cavity supports the cyst theory, since it resembled mucus in no respect, but, on the contrary, was a yellowish, slightly turbid serum. Cholesterin crystals are often met with in the effusion and are considered pathognomonic of cystic formation. In the present instance the examination of the fluid was negative, no cholesterin being found. An examination of the excised piece of tissue by my friend Dr. Jonathan Wright failed to indicate whether it was the thickened lining of the antrum or a cyst wall. His report is as follows: After having been stained, one surface of the specimen was seen to be lined by a thin layer of flattened epithelial cells (three or four rows deep usually). Directly beneath this was a layer of fibrous connective tissue with very few round cells or nuclei; but everywhere a dense crowd of red blood-corpuscles. At one point, near the edge and free from epithelial covering, were a few bundles of striated muscular tissue (?). There were but few blood-vessels and no glands, although in certain places the reaction with hæmatoxylin stain suggested the pre-existence of glandular structure destroyed by pressure. Beneath the dense fibrous layers which constitute most of the thickness of the specimen were areas of loose connective tissue.

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FRANK P. FOSTER, M.D.

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